Improving Management of Safety Critical Equipment
Ajayi Adebayo DADA
Safety Risk and Reliability Engineering, Heriot-Watt University, Edinburgh, Scotland, UK, EH14 4AS

1. Introduction
Safety Critical Equipment (SCE) lifecycle management is the cornerstone of asset integrity management which is paramount to the Oil and Gas industry. Various major accidents occurring within the industry, and the outcome of enquiry reports often mentioned the failure of safety critical barrier systems. The Nigeria Liquefied Natural Gas Ltd. suffered a total plant power black-out incident in which most of its safety critical barriers functioned effectively on demand while a few of the SCEs' performances were not satisfactory. This generated some concerns which led to questions like:
- Are all SCEs within facility identified?
- Is our process of managing SCEs adequate?
- Is maintenance procedure sufficient document for executing performance assurance task on SCEs?

Montara Well Head Platform- primary well control barrier (SCE) – the 95/8" cemented casing shoe failed

2. Project Aims
The aim of this dissertation is to highlight weakness in the process of managing SCEs in Nigeria LNG, identify improvements in terms of process and development of the asset integrity Performance Standards, identifying benefits of using SCEs and Performance Standards in attaining overall improvements and risk reduction.

3. Methods
- Evaluating level of awareness of SCEs management process and barrier concept within the organisation using personal interview survey
- Identification of additional SCEs using Bow-ties Methodology
- Develop Performance Standard (PS) for SCE group in terms of Functionality, Availability, Reliability, Survivability and Interconnection (FARSI) using A Consensus of Expert (ACE) methodology
- Review of existing SCEs register using SCE identification flow chart.
- Review of the existing SCEs management process against industrial and international standards regulation

4. Results

5. Conclusion
It was established from this research that there is further opportunity for enhancing our understanding and implementation of the processes for managing SCE in accordance with industrial standards, regulations and legislation.

The dissertation provides ways of improving the process, content and implementation program to ensure conformance to industrial standards, regulations and legislations.